

ON THREE NEW SPECIES OF *HYDROPHILIDÆ*.

BY D. SHARP, M.B.

Dr. Leconte, in the Trans. Am. Ent. Soc., 1874, p. 47, has published the characters of an aberrant new genus and species of *Hydrophilidæ*, found in Texas by Belfrage, and has named the insect *Sepidulum costatum*. When I was last in London, Mr. E. W. Janson presented me, in the presence of Dr. Horn, with a peculiar small coleopterous insect he had destined for me, and on looking at the specimen I recognized it as allied to a remarkable species in my collection from South America, resembling, at first sight, a small *Trox*, or a Heteromorous Coleopteron, but which, after examination, I had referred to the *Hydrophilidæ*; and, on its being handed to Dr. Horn for inspection, he declared it to be allied to a remarkable insect that had much interested Dr. Leconte and himself, and which the latter was just describing under the name of *Sepidulum costatum*. Dr. Leconte, knowing the interest I felt in his new genus, has been so kind as to send me a couple of individuals, and, on examining them, I find that both my species are really closely allied to the Texas species, so that I feel justified in describing them under the same generic name, although it must be admitted that some of the slighter characters given by Dr. Leconte as characterising the genus, must in such case be eliminated from the generic formula, and considered as specially characteristic of the Texas species. The genus *Sepidulum* appears to me to possess a greater affinity with *Spercheus* than with any other described genus; the most important points in which it differs therefrom appearing to be: 1st, the structure of the antennæ; 2nd, the structure of the abdomen; and 3rd, the fact that *Sepidulum* is characterized by Leconte as possessing but four joints to the tarsi, while *Spercheus* has five. The basal joint of the tarsi in *Spercheus* is, however, very short, and, on making a careful examination, even without dissection, of *Sepidulum trogoides* and *S. bullatum*, I am able to perceive that there is a fifth joint present in the shape of a minute basal joint concealed by the extremity of the tibia. As regards the structure of the abdomen, I may also state that I have no doubt this will prove also not be important; *Spercheus emarginatus* has the abdomen formed of five well developed, finely pubescent, ventral segments; while of *Sepidulum* Leconte says, "the abdomen is deeply withdrawn in the cavity of the elytra; it is flat, and I can see but four ventral segments, the last is rounded at tip and vaguely impressed each side; there may however be five segments, the first being invisible on account of the prominence of the metasternum and the contraction of the abdomen."

After examining, as well as I can without the aid of dissection, the larger species of *Sepidulum* here described, I feel little hesitation in stating my opinion that the abdomen in *Sepidulum* will be found to be composed of six horny ventral plates, and similar in structure and functional value to the abdomen of *Amphiops*, viz., a basal segment placed in a vertical direction immediately behind the coxæ, so as to be quite invisible except on dissection, a second segment reduced in size to an extremely narrow band, which is placed at right angles to the basal segment, and four large apical glabrous segments; whereas in *Spercheus emarginatus* the five apical segments are each about equally developed and are pubescent, the basal segment being glabrous and similar in form and position to that of *Sepidulum*. The difference then in structure of the abdomen in *Spercheus emarginatus* and *Sepidulum* will, I believe, be found to consist in the great reduction in size of the 2nd horny segment in *Sepidulum*, and in the apical segments being glabrous and therefore unfitted for detaining air for respiratory purposes. Precisely in these points the *Spercheus* from Australia here described stands intermediate; in it the four apical segments are large and glabrous, while the segment immediately behind the coxæ is pubescent, but its surface is about half cut away on each side in adaptation to the coxæ.

The characters furnished by the legs and abdomen seem to me therefore to indicate rather the affinity of *Sepidulum* with *Spercheus* than the contrary. On the other hand, the antennæ remain very different in the two genera, the structure in *Sepidulum* shewing no approach to the peculiar structure of these organs in *Spercheus*.

It is important to recall that *Spercheus* carries its eggs in a sac about with it, the sac being placed on the under surface of the hind-body; the structure of the abdomen, and the ample elytra (when the sac is attached and retained in position by the coxæ and femora), allowing it to find complete protection. *Sepidulum costatum* also carries and protects its eggs in a similar manner: not only does the structure of the abdomen indicate this, but I have direct evidence of the fact, inasmuch as one of the two specimens sent me by Dr. Leconte had, when it reached me, its egg sac still attached and containing a few ova.

The modifications of structure of the ventral segments in the group *Hydrophilidæ* are of singular interest to the student, being controlled as they are by three, if not more, important functional relations; viz.: relations to respiratory needs of aquatic life; 2nd, protection of eggs by their being carried about by the female; and

3rd, adaptations to modifications of hind coxæ for aquatic locomotion: the comprehension of these modifications and their functional values will facilitate the classification of the members of the group.

SEPIDULUM TROGOIDES, *n. sp.*

Ashy-red, antennæ and palpi yellow, thorax produced in the middle over the head, the sides indentate in an irregular manner so as to be ragged; elytra with suture and margin elevated, and each also with three costæ, the middle one interrupted near the base.

Length, 3 mm.

Head granulate above, the eyes completely divided by the canthus. Thorax forming a broad lobe in the middle over the head; on this lobe are two elevated lines, contiguous near the front, then diverging till behind the middle, when they become abruptly approximate, outside these lines is another irregular elevated one on each side; its upper surface is made rough by elevated granules; the sides are ragged and indented, but narrowed behind, so that the base is much narrower than the front. The elytra have, between the raised lines, coarse punctures, arranged in rather irregular rows, two rows between each of the middle costæ, and four between the outer one and the external margin. Metasternum granulated, with a slight depression in the middle at the extremity. Legs rather stout, rough; tarsi and claws moderately large.

South America, or possibly Mexico.

This insect is rather closely allied to *S. costatum*, Lec., from Texas; besides the differences in the sides of the thorax and the sculpture of the elytra, the only important structural characters I notice to distinguish it therefrom are the completely divided eyes, and the considerably larger tarsi and claws.

SEPIDULUM BULLATUM, *n. sp.*

Blackish, posteriorly reddish, on the upper surface with elevated metallic tubercles; legs stout, reddish, antennæ and palpi yellow.

Length, $3\frac{2}{3}$ mm.

Head with raised granules, the clypeus in front metallic; eyes large, incompletely divided by the canthus. Thorax much narrower than the elytra, a good deal narrowed towards the base, the front produced in the middle over the head as a broad lobe, in the middle of this near the front is a small elevated space, giving the appearance of another lobe; the sides are finely serrate, the surface is covered with granules, and has besides some large elevated pustules, some of which are metallic at their summit. Elytra roughened with sharp well-defined granules, and furnished with four rows of larger bulke or tubercles, which are metallic at their summit, the outer row sub-obsolete. Metasternum very short, with a raised, transverse, polished space, occupying its middle. Legs reddish, stout; the tibiæ rough, with longitudinal lines; the hind femora angulate beneath in the middle.

India. A single specimen, for which I am indebted to Mr. E. W. Janson.

Besides the distinctions in sculpture, this species differs from *S. costatum*, Lec., by the much stouter legs.

SPERCHEUS PRISCUS, n. sp.

Brownish-yellow, with the margins of the upper surface paler; thorax very short and transverse, with the sides serrate; elytra coarsely punctured, and with some not very distinct elevated costæ, the sutural costa short, and strongly elevated; the margins explanate.

Length, 4 mm. Breadth, $2\frac{1}{2}$ mm.

Much narrower than the European *S. emarginatus*; like it, covered with a crust concealing its sculpture. Head with the sides of the clypeus much raised, depressed and emarginate in front, its surface uneven, the front part but little punctured, the hinder roughly but indistinctly punctured. Thorax narrower than the elytra, very short, the front angles prominent, the sides serrate, the middle part like the head brown in colour, the sides yellowish, the sculpture of the centre rough but indistinct, the sides nearly smooth. Scutellum elongate, smooth, and shining. Elytra very convex, yellowish, irregularly maculated with brown, with four costæ; the internal one strongly elevated at the base, in the middle almost absent, then again a good deal elevated at the extremity; the 2nd and 4th costæ reach quite to the extremity, the 1st and 3rd do not; the interstices are very coarsely punctured. The four apical segments of the abdomen are glabrous and shining, the basal one, as well as the sternum, dull and pubescent. Tibiæ rather strongly serrate externally; basal joint of tarsi very indistinct.

Rockhampton, Queensland.

Thornhill, Dumfries:

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NOTES ON BRITISH *TENTHREDINIDÆ*, WITH DESCRIPTIONS OF TWO NEW SPECIES.

BY P. CAMERON, JUN.

STRONGYLOGASTER FEMORALIS, sp. n.

S. niger, nitidus, pronoti limbo, tegulisque albidis, abdomine cingulo lato rufo; pedibus testaceis, femoribus fere totis nigris; alis hyalinis, stigmate nigricante. ♂ ♀.

Long. $3\frac{3}{4}$ lin.

♀. Antennæ filiform, black, shorter than the thorax and abdomen. Head shining, totally black. Thorax black, shining, glabrous; pronotum broadly edged with sordid white; tegulæ white; cenchri small, obscure white. Abdomen black, less shining than the thorax; the segments not smooth as in *S. mixtus*, but in furrows; the four middle segments red, beneath they are also red, but the sides are